DIVISION OF LANGUAGE SERVICES

(TRANSLATION)

LS NO. 39161-A
T-131/R-XVIII
Russian

Mr. Warren D. Fairchild
Assistant Director, Water Resources Planning
Bureau of Reclamation
Department of the Interior
Washington, D.C. 20240

Dear Mr. Fairchild:

Thank you for your letter of July 13, 1973, concerning the proposals of the American side on developing a joint plan of scientific-technical cooperation in the field of planning and utilization of water resources.

The Soviet side of the Joint Soviet-American Working Group for subject I-1, "Planning and rational utilization of water resources," together with representatives of the Soviet organizations requested to cooperate, has carefully studied your proposals and concludes that the questions proposed by you make it possible to cooperate fruitfully on the subject "Planning and development of measures for the rational exploitation of water resources."

We feel that a number of questions in your list concern a narrower engineering task connected with the design and construction of individual hydrotechnical structures. These are:

9. Methods for the collection, interpretation and evaluation of geological data used for studying and calculating foundations.

10. Methods, technology and new approach to the analysis of structures and materials used for the design and construction of water-economy objects.

11. Prediction of earthquakes, determination of their intensity, methods for determining seismicity propagation, effect of local geological conditions, and behavior of structures under seismic conditions.

12. Advanced analytical methods to determine the stability of earth dams.

13. Groundwater movement. Movement of water through the body of a dam, and, specifically, through fissured rock. Movement of regional groundwater.

14. Potential saturation of foundation materials.

15. Resistance of bedrock.

16. Evaluation of the stability of rock fill.

Paragraph 8, "Subterranean water, including: storage, subterranean accumulation, yield, economics, exploitation schemes, modeling and control techniques," belongs to subject I-2 which is to be studied by another working group at subsequent stages of our cooperation.

I am submitting to you a list of questions that have been discussed with the Soviet organizations participating in our cooperation, and which are of interest to the Soviet side.

We have endeavored to compile this list in accordance with subject I-1, and we feel that the questions included therein satisfy both sides.

Besides general and methodical questions of planning and developing measures for the rational utilization of water resources, we have included in our list specific questions on the transfer of runoff between river basins based on the example of our Siberian rivers and of the comprehensive plan, developed in the U.S., for the utilization of the water resources of the North American continent.

I am also sending you, for comparison, a tabulated analysis of the list of questions presented by the American and Soviet sides for the cooperative program.

The following Soviet organizations have been included among the implementers of subject I-1:

Soyuzvodproyekt

All-Union Research Institute of Hydraulic Engineering and Reclamation

Central Research Institute on the Comprehensive Utilization of Water Resources

Institute of Water Problems of the U.S.S.R. Science Academy

Gidroproyekt Institute

At the present time these organizations are preparing lists of technical literature for exchange with the American side, indicating the dates when they will be sent. We can begin the exchange of technical literature in December 1973.

I agree with you, Mr. Fairchild, that the exchange of specialists for the purpose of acquainting themselves with the various operations for the utilization and management of water resources should begin after the exchange of technical literature. Proposals as to the terms of the exchange visits will be sent you subsequently.

In concluding I should like to thank you again for your letter, and I should like to express in turn the certainty that our cooperation will perform a useful service for our two countries.

Respectfully,

[s] A. Volynov
Coordinator of the Soviet side for "Planning and development of measures for the rational utilization of water resources"

Enclosures: List of questions proposed for cooperation with the U.S.

Tabulated analysis of questions submitted by the American and Soviet sides for such cooperation.

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Appendix

LIST OF PROPOSED QUESTIONS FOR COOPERATION WITH THE U.S.

1. Determination of water requirements of primary water consumers and development of increased specific consumption standards for this purpose.
2. Principles and methods of long-term planning for the utilization of water resources in river basins, evaluation of runoff deficits and ways to decrease them, optimization of inter-basin runoff transfer parameters, joint designing of technical solutions for inter-basin runoff transfers on the model of runoff transfers for Siberian rivers and comprehensive utilization of water resources of the North American continent.
3. Methods for determining possible changes in water resources caused by man's economic activity.
4. Determination of fundamental parameters for water conducting and controlling structures, electrical and mechanical power equipment at pumping stations, and organization of building and production operations following the examples of partial runoff transfer from Siberian rivers to the southern slope and the water resources utilization plan for the North American continent.
5. Method for compiling water management balances for river areas, inland sea basins, regions, and the country as a whole. Principle of water allocation among individual water consumers under conditions of water shortage.

6. Methods and examples of economic evaluation of projected measures for inter-basin runoff transfer.
7. Methods of evaluating, analyzing and predicting sedimentation and erosion at water management facilities, solution to the erosion problem.
8. Stochastic approach in hydrological investigations and methods used for collecting, analyzing, assimilating and utilizing hydrological information for the purpose of developing hydrological models and water-economy objects.
9. Prediction of the effect of water economy measures on changes in the environment, the ecology and land utilization.
10. Systematic approach to the management of water resources within a large river basin and individual enterprises, and development of an organizational structure for the management of the water economy of river basins.
11. Ways of improving the effectiveness of water utilization for irrigation.
12. Development of a mathematical model to keep track of water quality during operative management of water resources utilization in a complex water-economy system.
13. Methods of economic evaluation of reclamation measures.
14. Ways of increasing the efficiency of multipurpose utilization of reservoirs.
15. Methods of economic evaluation of water as a natural resource.

LS No. 39161-C

ANALYSIS

of questions presented by the American and Soviet sides for scientific-technical cooperation between the U.S. and U.S.S.R.

No.	Name of subject of cooperation proposed by the American side	No. of paragraph of Soviet proposals, as per letter	Name of subject of cooperation proposed by the Soviet side
1	2	3	4
1	Organization of exchange with bibliographic materials (title, synopsis) on special, mutually agreed questions.		Organization of an exchange of bibliographic materials on special, mutually agreed-upon problems. The technical literature can be transmitted in the form of brief notes or in its full extent.
2	Determination of new future research programs which would be of potential mutual interest and benefit and which could be carried out on a cooperative basis with the participation of the scientists.		These questions can be discussed during the forthcoming meeting of Soviet and American specialists.
3	Concepts, criteria and methods for: a) devising projects for the utilization of water resources; b) conducting technical-economic investigations and analyses; c) evaluation of measures from the viewpoint of their effect on land utilization, the environment and ecology.	2.	Principles and methods of long-term planning for the utilization of water resources in river basins, evaluation of runoff deficits and ways to decrease them, optimization of inter-basin runoff transfer parameters following the example of runoff transfers from Siberian rivers and of the comprehensive utilization of the water resources of the North American continent.
4.	Application of optimization methods when planning the utilization of water resources, and of systems analysis when developing navigation systems for river basins.	3.	Methods for determining possible changes in water resources caused by man's economic activities.

1	2	3	4
5.	Problems of water quality: a) salinization b) repeated water utilization c) processed runoff waters d) industrial waters, and e) municipal waters.	12.	Development of a mathematical model to keep track of water quality during operative management of water resources utilization in a complex water-economy system.
6.	Stochastic approach in hydrological investigations, and methods used to collect, analyze, assimilate, and use hydrological information for: a) developing hydrological models b) calculating water management facilities	8.	Stochastic approach in hydrological investigations and methods used for collecting, analyzing, assimilating and utilizing hydrological information for the purpose of developing hydrological models and water-economy objects.
7.	Methods of evaluating, analyzing and predicting the formation of deposits and the occurrence of erosion on water-economy objects, and of solving erosion problems.	7.	Methods of evaluating, analyzing and predicting sedimentation and erosion on water management facilities, and of solving erosion problems.
8.	Subterranean water, including: storage, underground accumulation, yield, economics, utilization schemes, modeling and management techniques.		This question should be studied by the working group on subject I-2 "Subterranean waters."
9.	Methods used for the collection, interpretation and evaluation of geological data used in investigating and designing foundations.		This question is not part of problem I.
10.	Methods, technology and new approaches to the analysis of structures and materials used for designing and building water-economy objects.		This question refers to problem II "Contemporary materials, and methods of designing and building water management facilities.

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1	2	3	4
	11. Prediction of earthquakes, determination of their intensity, methods for determining seismicity propagation, effect of local geological conditions, and behavior of structures under seismic conditions.		This question is not part of problem I.
	12. Advanced analytical methods to determine the stability of earth dams.		This question is not part of problem I.
	13. Groundwater movement. Movement of water around and through the body of a dam, and specifically, through fissured rock. Movement of regional groundwater.		This question is not part of problem I.
	14. Potential and saturation of foundation materials.		This question is not part of problem I.
	15. Resistance of bedrock.		This question is not part of problem I.
	16. Evaluation of the stability of rock fill.		This question is not part of problem I.
	17. Development of a system for the determination of the comprehensive requirements of land and water resources in a region, such as methodological principles of investigations or national assessments conducted by the U.S. Council on Water Resources.		This question is included in the subject proposed by us and mentioned above, "Principles and methods of long-term planning for the utilization of water resources in river basins. . ."
	18. Degree of interest in the protection and conservation of natural ecosystems.	9.	Prediction of the effect of water economy measures on changes in the environment, the ecology and land utilization.
	19. Design and application of instruments to measure the runoff of surface and subterranean waters, record the water quality, soluble solid particles, biological characteristics, etc., and exchange of information on large-scale laboratory experiments and analytical methods.		We suggest that this question be included in the working plan for scientific-technical cooperation in the next stage.

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1	2	3	4
20.	Rational water utilization, including a system of incentives and rotating water supply.	1.	Determination of water requirements of primary water consumers, and development of increased specific consumption standards for this purpose.
		11.	Ways of improving the effectiveness of water utilization for irrigation.
21.	Systematic approach to the management of water resources within a large river basin and individual enterprises.	10.	Systematic approach to the management of water resources within a large river basin and individual enterprises, and development of an organizational structure for the management of the water economy of river basins.
22.	Distribution of water under conditions of water resources shortage, principles of such distribution among individual water consumers.	5.	Method for compiling water management balances for river areas, inland sea basins, regions, and the country as a whole. Principle of water allocation among individual consumers under conditions of water shortage.
23.	Methods for determining water consumption in agriculture.		This question is included in the subject proposed by us, "Determination of water requirements of primary water consumers, and development of increased specific consumption standards for this purpose."
		4.	Determination of fundamental parameters for water conducting and controlling structures, electrical and mechanical power equipment at pumping stations; organization of building and production operations following the examples of partial runoff transfer from Siberian rivers to the southern slope and the water resources utilization plan for the North American continent.

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1	2	3	4
		6.	Methods and examples of economic evaluation of projected measures for inter-basin runoff transfer.
		13.	Methods of economic evaluation of reclamation measures.
		14.	Ways of increasing the efficiency of multipurpose utilization of reservoirs.
		15.	Methods of economic evaluation of water as a natural resource.

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Nomi
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Water Resources